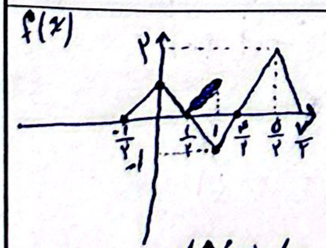
نام و نام خانوادگی ..امیرعلی تنهایی راد........ پاسخنامه تشریحی تکلیف شماره ..۷.. کلاس دوازدهم پسر B..........

۱۵/۵

$x_s = \frac{-b}{2a} = \frac{-\frac{2}{5}}{-\frac{2}{3}} = \frac{3}{5} \xrightarrow{+\frac{17}{5}} 4$ $y_s = -\frac{1}{3}\times\frac{9}{25} + \frac{2}{5}\times\frac{3}{5} + 1 = \frac{28}{25} \xrightarrow{+\frac{47}{25}} 3$ $\Rightarrow y' = -\frac{1}{3}\underbrace{(x-\frac{17}{5})}_{t}^2 + \frac{2}{5}\underbrace{(x-\frac{17}{5})}_{t} + 1 + \frac{47}{25}$ $y' = -\frac{1}{3}t^2 + \frac{2}{5}t + \frac{72}{25} = 0 \Rightarrow \Delta = \frac{4}{25} - 4(-\frac{1}{3})(\frac{72}{25}) = 4$ $t = \frac{-\frac{2}{5} \pm 2}{-\frac{2}{3}} = \frac{-\frac{2}{5} \pm \frac{10}{5}}{-\frac{2}{3}}$ $t_1 = \frac{\frac{8}{5}}{-\frac{2}{3}} = \frac{-24}{10} = -\frac{12}{5}$, $t_2 = \frac{-\frac{12}{5}}{-\frac{2}{3}} = \frac{-36}{-10} = \frac{18}{5}$ $\begin{cases} x_1 = -\frac{12}{5} + \frac{17}{5} = 1 \\ x_2 = \frac{18}{5} + \frac{17}{5} = 5 \end{cases}$ ۱	۱
$\beta = 1 - 2f(3\alpha+2)$ $\quad 3\alpha + 2 = 1 \Rightarrow 3\alpha = -1 \Rightarrow \alpha = -\frac{1}{3}$ $\beta = 1 - 2f(1) = 1 - 2(4) = -7$ $\alpha\beta = -\frac{1}{3} \times -7 = \frac{7}{3}$ جواب سوال ۱ معادله سهمی برحسب ضریب و رأس آن $y = -\frac{1}{4}(x-4)^2 + 3$ $y < 0 \to -\frac{1}{4}(x-4)^2 < -3 \to (x-4)^2 > 9$ $x - 4 > 3 \to x > 7$ $x - 4 < -3 \to x < 1$ ۲	۲
$y = 3 - \sqrt{2x} \Rightarrow 3 - \sqrt{2(x+1)} \Rightarrow -3 + \sqrt{2(x+1)} + 5 \Rightarrow y' = \sqrt{2x+2} + 2$ $\sqrt{2x+2} + 2 = \frac{7}{2} \Rightarrow \sqrt{2x+2} = \frac{3}{2} \Rightarrow 2x + 2 = \frac{9}{4} \Rightarrow 2x = \frac{1}{4} \Rightarrow x = \frac{1}{8}$ ۲	۳
$a < x-1 \le 4 \Rightarrow a+1 < x \le 5$ $-1 \le x+1 < b \Rightarrow -2 \le x < b-1$ $\Rightarrow a + 1 = -2 \Rightarrow a = -3$ $b - 1 = 5 \Rightarrow b = 6$ $b - a = 6 - (-3) = 9$ ۲	۴
$f(x)$  $D_f = [-\frac{1}{2}, \frac{7}{2}]$ $\quad y_2 = \sqrt{\lvert 2f(x) - 3 \rvert}$ $D_{y_2} = D_f$ زیر رادیکال همواره ≥ 0 $-1 \le f(x) \le 2 \Rightarrow -5 \le 2f(x) - 3 \le 1 \Rightarrow 0 \le \lvert 2f(x) - 3 \rvert \le 5 \Rightarrow R_{y_2} = [0, \sqrt{5}]$ ۲	۵

۶ — ۰

نقاط توپر دو تا لی برعکس هستند ← $a<0$

$f(-\frac{1}{a}) = -\frac{1}{a^2}[-1] = \frac{1}{4} \rightarrow a^2 = 4 \xrightarrow{a<0} a = -2$

$b = 1 \rightarrow \boxed{b - a = 3}$

---

۷ — ۲

$f(x) = \log_2^{x} \Rightarrow f(x) = \log_2^{x+2} \Rightarrow -\log_2^{x+2} \Rightarrow -\log_2^{x+2} + 3 \Rightarrow -\log_2^{-x+2} + 3$

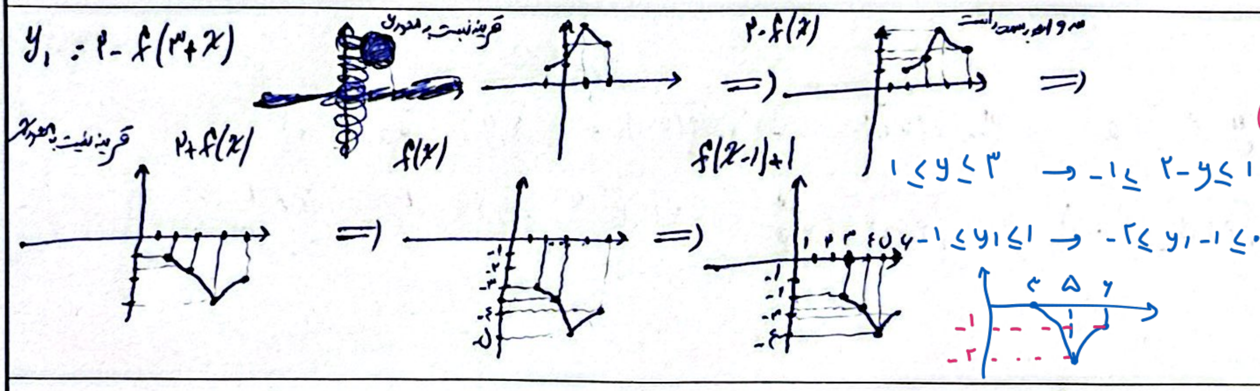
$g(x) = -\log_2^{-x+2} + 3 \qquad g(-14) = -\log_2^{16} + 3 = -1$

$g(-62) = -\log_2^{64} + 3 = -3 \quad \xrightarrow{(+)} -4$

---

۸ — ۱

$y_1 = 2 - f(3+x)$



$1 \le y \le 3 \rightarrow -1 \le 2 - y \le 1$

$-1 \le y_1 \le 1 \rightarrow -2 \le y_1 - 1 \le 0$

---

۹ — ۱/۵

$f(x) = \left|\frac{x+1}{2x+1}\right| \Rightarrow \left|\frac{x-2+1}{2(x-2)+1}\right| + 1 = g(x) \Rightarrow g(x) = \left|\frac{x-1}{2x-3}\right| + 1$

جواب قدر مطلق ← $x<-1$

$1 + x + \left|\frac{x-1}{2x-3}\right| < 0 \Rightarrow \left|\frac{x-1}{2x-3}\right| < -x-1 \Rightarrow x+1 < \frac{x-1}{2x-3} < -x-1 \Rightarrow$

$-\sqrt{2} \quad \sqrt{2} \quad \frac{3}{2}$: $- \mid + \mid - \mid +$

جواب $= (\sqrt{2}, \frac{3}{2})$

$\frac{x-1}{2x-3} + (x+1) < 0 \qquad \frac{2x^2-4}{2x-3} < 0 \qquad \xrightarrow{x<-1} x < -\sqrt{2}$

---

۱۰ — ۲

$g(x) = \sqrt{28f(x) - f^2(x)} \xrightarrow{f(x)=t} 28t - t^2 \ge 0 \Rightarrow t(28-t) \ge 0$: $0 \quad 28$: $- \mid + \mid -$

$0 \le f(x) \le 28 \qquad f(x) = a(x-2)^3 + 27 \Rightarrow -8a + 27 = 0 \Rightarrow 8a = 27 \Rightarrow a = \frac{27}{8}$

$0 \le \frac{27}{8}(x-2)^3 + 27 \le 28 \Rightarrow -27 \le \frac{27}{8}(x-2)^3 \le 1 \Rightarrow -3 \le \frac{3}{2}(x-2) \le 1$

$\Rightarrow -2 \le x-2 \le \frac{2}{3} \Rightarrow 0 \le x \le \frac{8}{3} \qquad 0, 1, 2 \Rightarrow$ سه عدد صحیح